

Prima Ricerca & SviluppoSrl soggetta a direzione e coordinamento da parte della Giovanni Maspero & C. S.p.A. – C.I. 02634780130
Sede legale : 22100 Tavernola (CO) Via Conciliazione, 1 Cod. FISC. e N. R.I. CO 02635860139
Sede operativa : Laboratori Via Campagna, 92 22020 Faloppio fraz. Gaggino (CO) Tel. +39 03135000.11 Fax +39 031991309

EQUIPMENT UNDER TEST :
APPARECCHIO IN PROVA :

RECEIVER at 868 MHz
TYRE TEMPERATURE AND PRESSURE
WIRELESS CONTROL SENSOR
RTS

REFERENCE STANDARDS :
NORME DI RIFERIMENTO :

47 CFR Part 15 – Unintentional Radiators

CUSTOMER:

RICHIEDENTE:

- **Dept. / Firm:** *Ente* **ZADI S.P.A.**
/ Società:
- **Mr.:** **SIG. CAVAZZA**
Sig.:
- **Address:** **VIA C.MARX, 138 – 41012 CARPI (MO)**
Indirizzo:
- **Tel. :** +39 059 6323235 • **Telefax:** +39 059 6323240 • **E-mail:** daniele.cavazza@zadi.com
Telefono : *Fax :*

Site of test execution: Via Campagna, 92 - 22020 Gaggino Faloppio (CO) - Italy
Località esecuzione prove:

Date of test samples receipt: **26/07/2007** **Date of start test:** **26/07/2007**
Data ricevimento campioni: *Data inizio prove:*

Date of end test: **26/07/2007**
Data fine prove:

Witness to the test:
Presenti alle prove:

Tested by:
Testato da:

Approved by:
Approvato da:

Nobody / Nessuno

.....
Massimiliano Tallariti

.....
Massimo Maltempi

The test results recorded in this Test Report are exclusively referred to the tested samples.

I risultati del presente rapporto di prova si riferiscono esclusivamente al campione sottoposto a prova.

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1. TECHNICAL INFORMATION OF EQUIPMENT UNDER TEST (EUT)

1.1 Identification

Brand name: ZADI SPA
Manufacturer : ZADI SPA
Model name or No. : TYRE TEMPERATURE AND PRESSURE
WIRELESS CONTROL SENSOR
mod. RTS
Part number / Serial No.: Not present
Country of manufacturer: ITALY
FCC ID : VFZZADIRTS00

1.2 Technical data

RECEIVER

- Test Frequency (centre of band) : 868.35MHz
- Modulation : FSK
- Input voltage : 3Vdc powered by Lithium internal battery type CR123

1.3 Modifications incorporated in E.U.T.

The following items are the modifications introduced in the equipment under test :

- None

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1.4 *Derived models*

- None

1.5 *Ports identification*

This section contains descriptions of all signal ports and AC/DC power input/output ports, the length and the type of the cable provided by manufacturer needed for the tests.

Moreover it is specified if the ports are ever or optionally connected.

Port		Description	Maximum length	Connection	Ancillaries / Modules / Support Equipment
1	Enclosure	Plastic case	----	By screws	----
2	AC power input/output ports	Not present	*****	*****	None
3	DC power input/output ports	3Vdc powered by Lithium internal battery type CR123	*****	*****	None
4	Signals Ports	Not present	*****	*****	None

Note: During the tests all cables must be what provided the manufacturer or the same that used in the real employment of the EUT.

1.6 *Auxiliary equipment*

- None

2. TEST CONDITIONS

2.1 Operating test modes and test conditions

The equipment has been tested according to the operative conditions described in the user/installation manual provided by the manufacturer and by following reference standards :

Reference Standard:

- FCC Part 15, Subpart B

In the following table there are the operating conditions adopted during tests identified by an indicator (#..) at which has been referred the item “Operating condition of the equipment under test” of all technical sheets of the tests (see Section 4)

Operating condition	Description
#1	<i>Continuous receiver</i>

2.2 Test overview

The appliance is classified as “*unintentional radiator*” in conformity to FCC Part 15 Sub. B §15.109, §15.107 , and it is subject to “*Certification*” procedure.

The application is mainly used as document encrypting and data storing.

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3. REFERENCE STANDARD FOR PERFORMED TESTS

<i>Reference standard :</i>	<i>Title :</i>
FCC Part 15 part A	Code of Regulations Part 15 (Radio Frequency Devices), Subpart A (General) of the Federal Communication Commission (FCC)
FCC Part 15 part B	Code of Regulations Part 15 (Radio Frequency Devices), Subpart B (Unintentional Radiators) of the Federal Communication Commission (FCC)
ANSI C63.4	American National Standard for Methods of Measuring of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz – 40 GHz

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4. SUMMARY OF TEST RESULTS

4.1 Emission tests

Port		Phenomena	Basic standard	Operating condition ¹	Result
1	Enclosure	Radiated emission	FCC Part 15 § 15 109	#1	Within the limit
2	AC mains Input ports	RF Disturbance voltage: • continuous	FCC Part 15 § 15 107	Not applicable:port not present	
3	Antenna terminals	Antenna power conduction limits for receivers	FCC Part 15 §15 111	Not applicable: Applicable only to equipments which have an external antenna connector	

¹ Ref. Tab. of Section 2

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5. TEST RESULTS

RADIATED EMISSION 30 - 5000 MHz.....9

**TEST
1.****RADIATED EMISSION 30 - 5000 MHZ****REFERENCE
DOCUMENT**

FCC PART 15 subpart B

- **TEST LOCATION:** Semi-anechoic chamber
- **TEST EQUIPMENT USED FOR TEST:** EMI receiver Rohde & Schwarz Mod. ESMI
Chase Antenna Mod. CBL 6111 A
Log-periodica Broadband Antenna mod. HL025
- **TESTED PORT:** Enclosure
- **EMISSION LIMITS:** Acc. to Section 15.109 of reference document
- **UNCERTAINTY OF MEASURE:** Combined uncertainty = ± 1.75 dB
Total uncertainty = $(k=2) \pm 3.5$ dB

TEST CONDITIONS:		MEASURED
Ambient temperature :	15 - 35 °C	23,5 $\pm$ 3 °C
Ambient humidity :	25 - 75 %rH	39 $\pm$ 5 %rH
Pressure :	85 - 106 kPa (860 mbar - 1060 mbar)	950 $\pm$ 50 mbar
Voltage :		3Vdc

OPERATING CONDITION (Rif. Section. 2) : #1**RESULT: WITHIN THE LIMIT**

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SCAN TABLE : “Radiated Emission”Unit: dB μ V/m

Detector : Mode:

Curve1: MaxPeak ClearWrite

Curve2: -- ClearWrite

Subrange1:

Start Frequency:	30.0 MHz	Step Size:	80 kHz
Stop Frequency:	1000.0 MHz	IF Bandwidth:	120 kHz
Measure Time:	0.01 sec.		

Subrange 2:

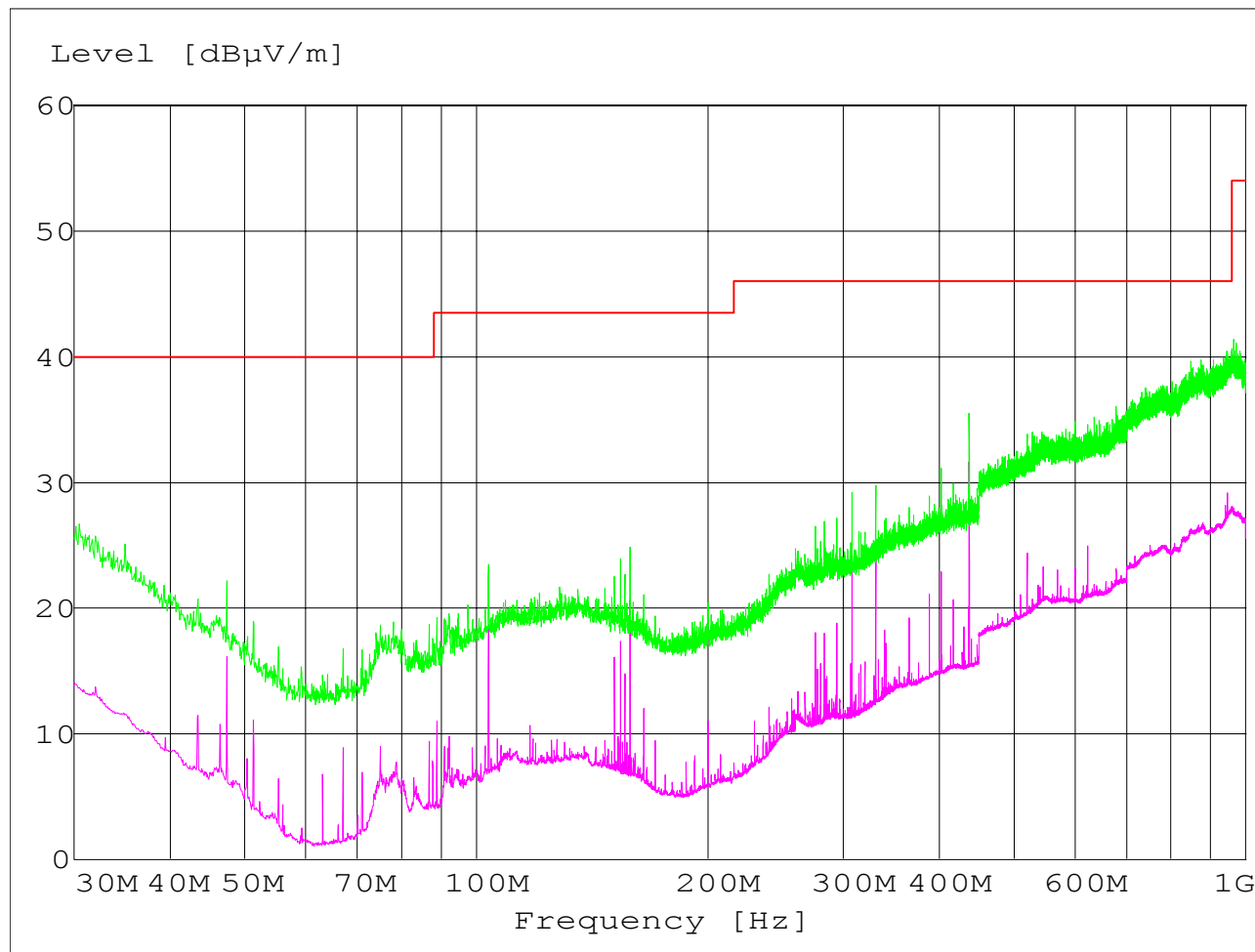
Start Frequency:	1000.0 MHz	Step Size:	500 kHz
Stop Frequency:	5000.0 MHz	IF Bandwidth:	1000 kHz
Measure Time:	0.01 sec.		

Receiver:	ESXI	Probe Transducer:	CHASE_6111_PRC
Signal Path:	Path 4	System Transducer:	RFin2-CP1/X11
Scan Mode:	Lin	Add. Transducer:	W71.01
Tracking Gen.:	Off		
Input:	2 DC		

Preamplifier:	10 dB	Demodulation:	FM Broad
RF att.:	Coupled	Volume:	0.0%
Ref. Level:	-50 dBm	Squelch:	--
Min. RF att.:	0 dBm	Option:	None
Autorange:	On		

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Sub-range 1:



Sub-range 2:

No significant disturbance in the range 1-5 GHz.

6. EUT TECHNICAL DOCUMENTATION

6.1 Wiring diagrams

	Document reference (n., edition, date, ...)																																
WIRING DIAGRAM	<table><tr><td colspan="2">ZADI spa </td><td colspan="2">Via C. Marx, 138 I-41012 Carpi (MO) Italy</td></tr><tr><td>TITOLO</td><td colspan="3">P992 - ZTS BIKE</td></tr><tr><td>NOME FILE</td><td colspan="3">CENTRALE RICEVENTE - V02.scm</td></tr><tr><td>AUTORE</td><td colspan="3">Romano Bernarducci</td></tr><tr><td>VER</td><td>00</td><td>REV</td><td>A</td><td>DATA</td><td>17/01/2007</td><td>FOGLIO</td><td>1/2</td></tr><tr><td colspan="8">PROPRIETA' ESCLUSIVA DI ZADI SPA. DIVIETO DI RIPRODUZIONE IN QUALSIASI FORMA SENZA AUTORIZZAZIONE SCRITTA.</td></tr></table>	ZADI spa 		Via C. Marx, 138 I-41012 Carpi (MO) Italy		TITOLO	P992 - ZTS BIKE			NOME FILE	CENTRALE RICEVENTE - V02.scm			AUTORE	Romano Bernarducci			VER	00	REV	A	DATA	17/01/2007	FOGLIO	1/2	PROPRIETA' ESCLUSIVA DI ZADI SPA. DIVIETO DI RIPRODUZIONE IN QUALSIASI FORMA SENZA AUTORIZZAZIONE SCRITTA.							
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PROPRIETA' ESCLUSIVA DI ZADI SPA. DIVIETO DI RIPRODUZIONE IN QUALSIASI FORMA SENZA AUTORIZZAZIONE SCRITTA.																																	
GERBER	Gerber-Central Unit Gerber-Sensor																																
PART LIST	P992 – BOM Centrale																																
	P992 – BOM Sensore																																

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6.2 Technical manual

Document reference (n., edition, date, ...)

 ZADI AUTOMOTIVE	SISTEMA RTS ZADI07/06/2007	Rev 01
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Family Products: RTS Real Time Sensor		Code of the involved products: Multiples	
Autor: Daniele Cavazza	Approved:	Data: 11/05/2007	Rev.: 00

Technical Construction File (Real Time Sensor) ZADI

Data	Rev.	Descrizione modifiche	Punti modificati	Firma
11/05/2007	01	First Release	-	Cavazza

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6.3 Photographic documentation

PHOTO N. 1 – EQUIPMENT UNDER TEST

